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A new species and family of beetle for Georgia (Sakartvelo): *Arrhaphipterus schelkownikoffi* Reitter, 1893 (Coleoptera: Rhipiceridae)

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Abstract

Arrhaphipterus schelkownikoffi Reitter, 1893, is reported from Georgia for the first time. Detailed information on the trapping localities, as well as photographs of the male, female, male genitalia, and empodium, are provided.

Key words

Beetle fauna, new record, south-eastern Caucasus

According to the Catalogue of Palaearctic Coleoptera (Hajek 2016), the genus Arrhaphipterus Schaum, 1862, which has a Western Palearctic distribution (south-eastern Europe, the Middle East, and North Africa), contains eight species. It has long been questioned, however, whether *A. larclausei* Reitter, 1894, and *A. dioni* Chobaut, 1896, are in fact separate species (Martínez De La Escalera 1914; Winkler 1925; Peyerimhoff 1949; López-Colón 2001; Ruiz et al. 2016). All the species of this genus are very rare; they have an extremely secretive lifestyle and are usually only trapped incidentally during the day or at night (Wurst 1997). To date, there is no knowledge of their younger developmental stage, and what little is known about their biology relates to the localities where imagoes were trapped.

Arrhaphipterus schelkownikoffi Reitter, 1893 was described by Reitter (1893) on the basis of a series of specimens collected by A. Schelkownikoff on *Tamarix* L. perennials on the Jewlach steppes near Elisabethpol (present-day name – Gandja, in Azerbaijan). Before now, it was known not only from Azerbaijan but also from Armenia, Turkey, Turkmenistan (Hajek 2016), and Iran (Sakenin et al. 2018; Ghahari et al. 2021). The Atlas of Beetles of Russia (https://www.zin.ru/Animalia/Coleoptera/eng/arrschms.htm) shows a photograph (taken by ME Smirnova) of a female *A. schelkownikoffi* from Dagestan (Dagesthan, 20 km W Makhachkala, Karatebe Mts, 15.07.1997, leg. M Savitskiy, female – 19.5 mm). One may infer from the literature that this is the most commonly trapped and most widely distributed member of *Arrhaphipterus*. The natural history of *A. schelkownikoffi* is unknown. But if we compare it to the related species (Jin et al. 2013), it is not improbable that the larvae of *A. schelkownikoffi* could be ectoparasites of cicada larvae. This is further suggested by its localities in Georgia, where cicadas are abundant.

In recent times, Georgia has become a favouret destination for entomological research expeditions. The specimens of *A. schelkownikoffi* described in this paper were caught incidentally during expeditions of Polish entomologists from

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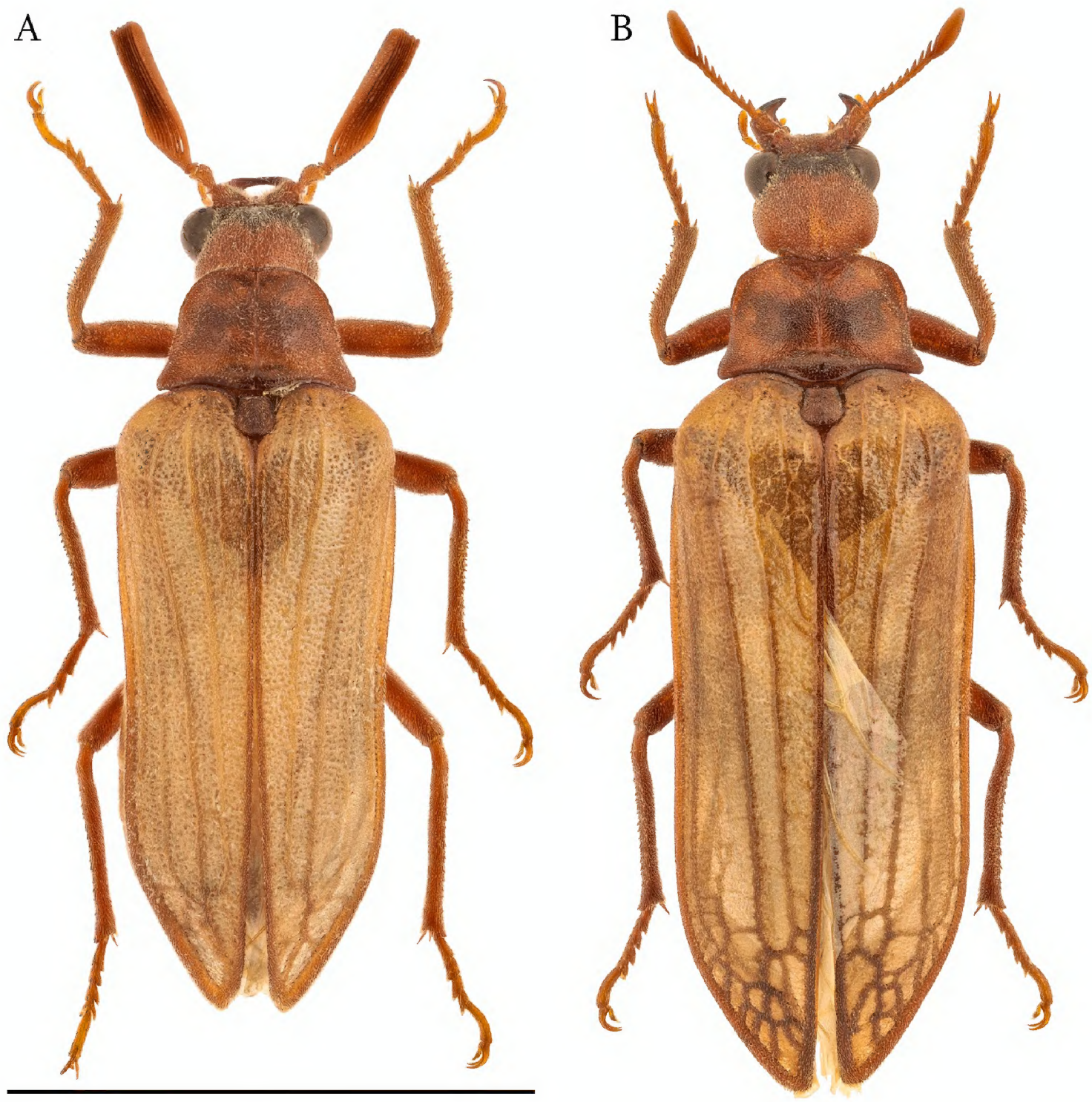

Figure 1. A: Male specimen of *Arrhaphipterus schelkownikoffi* Reitter, 1893 from the Vashlovani National Park, habitus (photo Lech Kruszelnicki). **B**: Female specimen of *A. schelkownikoffi* Reitter, 1893 from the Vashlovani National Park, habitus (photo Lech Kruszelnicki). Scale bar: 10 mm.

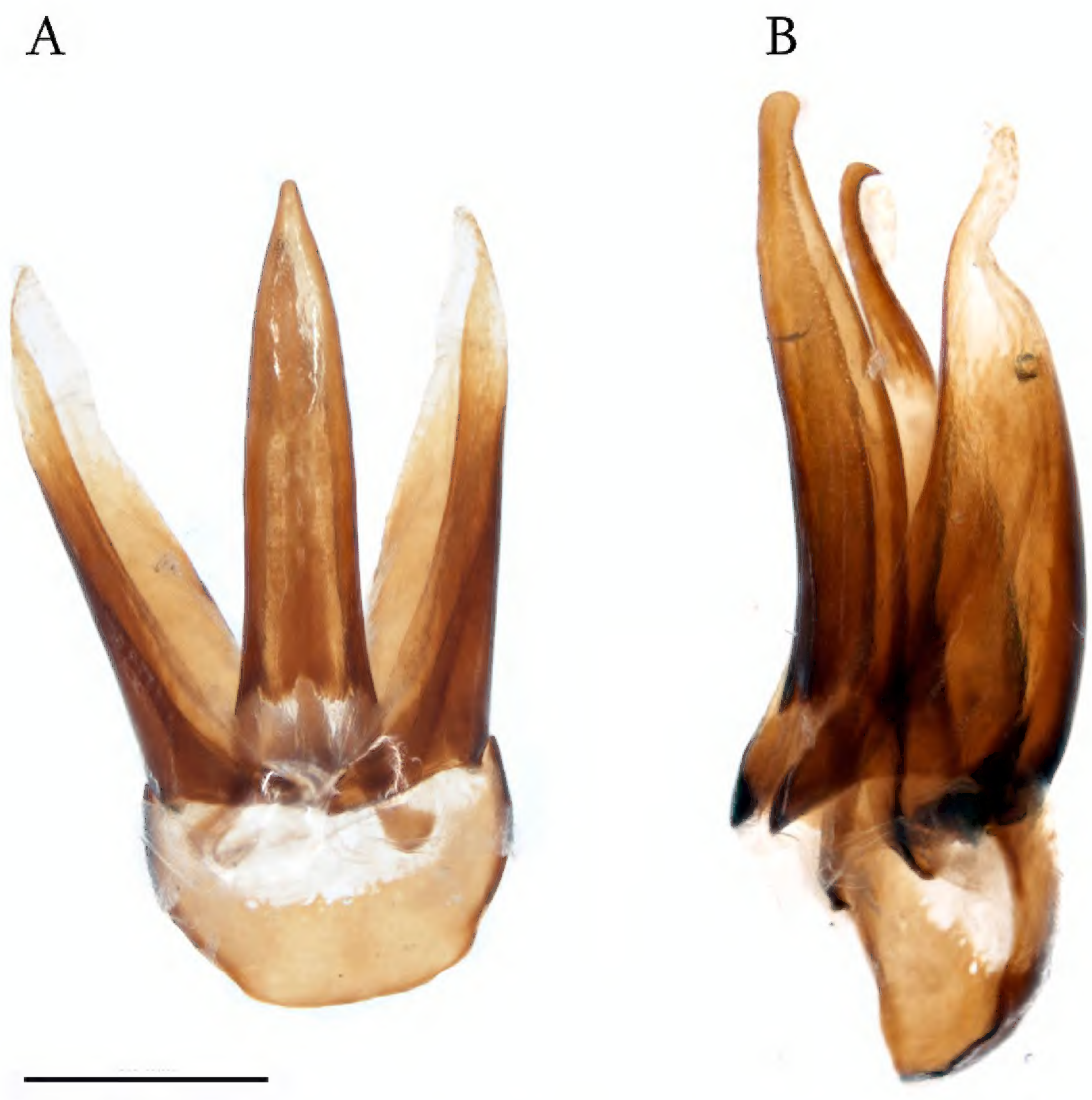

Figure 2. *Arrhaphipterus schelkownikoffi* Reitter, 1893 aedeagus; **A**: dorsal view (photo Adam Larysz). **B**: lateral view (photos by Adam Larysz). Scale bar: 0,5 mm.

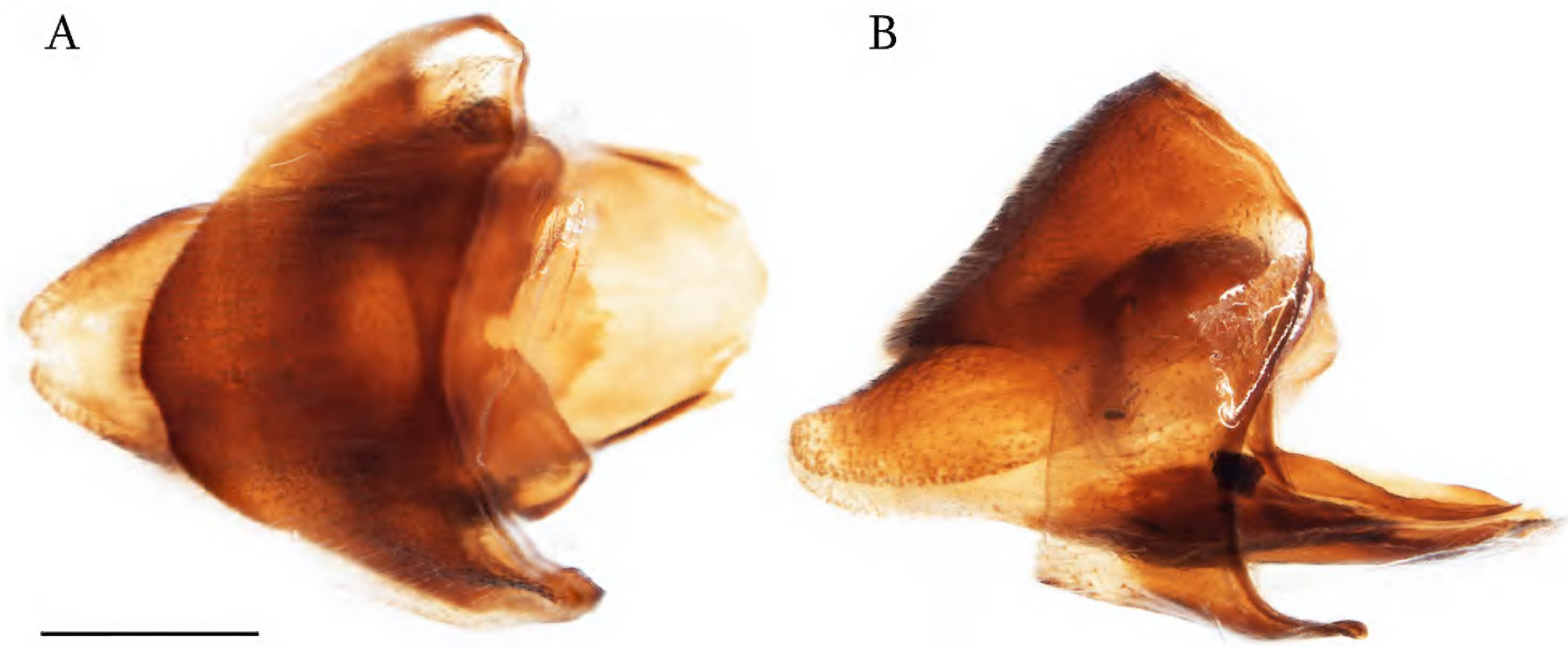

Figure 3. *Arrhaphipterus schelkownikoffi* Reitter, 1893 abdominal tergites. **A**: VII and VIII; **B**: VII and VIII. lateral view (photos by Adam Larysz). Scale bar: 0,5 mm.

Figure 4. *Arrhaphipterus schelkownikoffi* Reitter, 1893 tarsus, empodium, dorsal view (photo Andrzej Lasoń). Scale bar: 0,5 mm.

Figure 5. A: Vashlovani National Park near Mijniskure. The line of trees is an alluvial forest in the valley of the River Alazani (photo R. Greń). **B**: Vashlovani National Park, Pantishara canyon. Collecting site of *Arrhaphipterus schelkownikoffi* Reitter, 1893 with UV trap shown (photo R. Dobosz).

the Upper Silesian Museum in Bytom, the Poznań University of Life Sciences, the Polish Entomological Society, and the Silesian Entomological Society, in cooperation with the Institute of Entomology, Agricultural University of Georgia. In recent years, a total of 22 specimens of *A. schelkownikoffi* have been caught in south-eastern Georgia • 1♂; Kakheti, *V*ashlovani National Park, by the river near the visitor centre*;* 41°11'N, 46°32'E; 350 m a.s.l.; 27/28 August 2015; UV trap; leg. R. Wąsala • 1♂; Kakheti, Vashlovani National Park, Mijniskure; 41°06'40"N, 46°38'48"E; 100 m a.s.l.; 26 June 2017; light and netting trap; leg. R. Dobosz • 1♂; Kakheti, Vashlovani National Park, visitor centre; 41°09'36"N, 46°34'02"E; 275 m a.s.l.; 16/17 June 2021; light trap; leg. A. Lasoń • 1♀, 3♂♂; Kakheti, Vashlovani National Park, Pantishara canyon; 41°14'15"N, 46°21'55"E; 392 m a.s.l.; 6 August 2021; UV trap; leg R. Dobosz • 1♀, 4♂♂; Kakheti, Vashlovani National Park, visitor centre; 41°09'36"N, 46°34'00"E; 288 m a.s.l.; light and UV trap; 7 August 2021; leg R. Dobosz • 1♂; Kakheti, Vashlovani National Park, Mijniskure; 41°06'40"N, 46°38'48"E; 100 m a.s.l.; caught at night, UV lamp; 23 June 2022; leg. C. Greń • 1♂; Kakheti, Chachuna National Park; 41°13'13"N, 45°58'20"E; caught at night, UV lamp; 21 June 2022; leg. K. Lubecki. 7♂♂1♀; Kakheti, Chachuna National Park; 41°13'13"N, 45°58'20"E; caught at night, 18 July 2023; leg. R. Dobosz.

Pictures of male and female *A. schelkownikoffi* are hardly available, provided only in Jacobson's Catalog from 1913 [Plate 42: 21 (male) and 24 (female)] and female photos on the Atlas of Beetles of Russia website. Photographs of a male and female (Fig. 1A,B), the male genitalia (Fig. 2A,B), and the terminal segments of the male abdomen (Fig. 3A,B) are provided here. An important diagnostic character of the genus *Arrhaphipterus* is the shape of the empodium, which in *A. schelkownikoffi* characteristically ends in two small protuberances, each armed with a few long bristles (Fig. 4).

The landscape of south-eastern Georgia, where the specimens of *A. schelkownikoffi* were trapped, consists of a mosaic of deserts, semi-deserts, steppes, and forest steppes. Alluvial forests and luxuriant herbaceous vegetation only flourish in the river valleys (Fig. 5A,B).

The localities in Azerbaijan where the specimens of *A. schelkownikoffi* described by Reitter (1893) were collected lie no more than 50-60 km from the border with Georgia, so it was merely a question of time before this species was also found in the latter country. The fact that we trapped fourteen specimens at a number of different localities suggests that *A. schelkownikoffi* is not as rare on the steppe and semi-desert areas of Georgia and Azerbaijan as at first thought. As in the case of *A. larclausei* Reitter, 1894 (Ruiz et al. 2016), the rarity of *A. schelkownikoffi* can probably be put down to a number of factors: low numbers and scattered populations; poor detectability because of the imago's mainly crepuscular and nocturnal activity; its phenology and habitat are not conducive to wide-ranging coleopterological studies; its life cycle is unknown, as are its habits and larval developmental stages.

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